

# Small Signal Transistors

TO-18 Case (Continued)



| TYPE NO. | DESCRIPTION     | $V_{CB0}$  | $V_{CEO}$  | $V_{EBO}$  | $I_{CBO}$ @                                       | $V_{CB}$ | $h_{FE}$ |     | $I_C$ | $V_{CE}$ | $V_{CE(SAT)}$ @ $I_C$ |      | $C_{ob}$    | $f_T$        | NF          | $t_{on}$    | $t_{off}$   |
|----------|-----------------|------------|------------|------------|---------------------------------------------------|----------|----------|-----|-------|----------|-----------------------|------|-------------|--------------|-------------|-------------|-------------|
|          |                 | (V)<br>MIN | (V)<br>MIN | (V)<br>MIN | ( $\mu A$ )<br>MAX<br>* $I_{CES}$<br>** $I_{CEV}$ | (V)      | MIN      | MAX | (mA)  | (V)      | (V)<br>MAX            | (mA) | (pF)<br>MAX | (MHz)<br>MIN | (dB)<br>MAX | (ns)<br>MAX | (ns)<br>MAX |
| 2N957    | NPN RF/IF OSC   | 40         | 20         | 5.0        | --                                                | --       | 45       | --  | 10    | 10       | --                    | --   | 6.0         | 200          | --          | --          | --          |
| 2N978    | PNP AMPL/SWITCH | 30         | 20         | 5.0        | 5.0                                               | 10       | 15       | 60  | 150   | 10       | 1.5                   | 150  | 45          | 40           | --          | --          | --          |
| 2N995    | PNP SAT SWITCH  | 20         | 15         | 4.0        | 0.005                                             | 15       | 35       | 140 | 20    | 1.0      | 0.2                   | 20   | 10          | 100          | --          | 65          | 125         |
| 2N996    | PNP SAT SWITCH  | 15         | 12         | 4.0        | 0.005                                             | 10       | 35       | --  | 20    | 1.0      | 0.3                   | 60   | 10          | 100          | --          | --          | --          |
| 2N1991   | PNP AMPL/SWITCH | 30         | 20         | 5.0        | 5.0                                               | 10       | 15       | 60  | 150   | 10       | 1.5                   | 150  | 45          | 40           | --          | --          | --          |
| 2N2205   | NPN SAT SWITCH  | 25         | 12         | 3.0        | 0.025                                             | 15       | 20       | --  | 10    | 1.0      | 0.22                  | 10   | 6.0         | 200          | --          | 40          | 75          |
| 2N2220   | NPN AMPL/SWITCH | 60         | 35         | 5.0        | 0.01                                              | 50       | 20       | 60  | 150   | 10       | 0.4                   | 150  | 8.0         | 250          | --          | --          | --          |
| 2N2221A  | NPN AMPL/SWITCH | 75         | 40         | 6.0        | 0.01                                              | 60       | 40       | 120 | 150   | 10       | 0.3                   | 150  | 8.0         | 250          | --          | --          | 285         |
| 2N2222A  | NPN AMPL/SWITCH | 75         | 40         | 6.0        | 0.01                                              | 60       | 100      | 300 | 150   | 10       | 0.3                   | 150  | 8.0         | 250          | --          | --          | 285         |
| 2N2242   | NPN SAT SWITCH  | 15         | 15         | 5.0        | --                                                | --       | 40       | 120 | 10    | 1.0      | 0.3                   | 10   | 6.0         | 250          | --          | --          | 25          |
| 2N2368   | NPN SAT SWITCH  | 40         | 15         | 4.0        | 0.4                                               | 20       | 20       | 40  | 10    | 1.0      | 0.25                  | 10   | 4.0         | 400          | --          | 12          | 15          |
| 2N2369A  | NPN SAT SWITCH  | 40         | 15         | 4.0        | --                                                | --       | 40       | 120 | 10    | 1.0      | 0.25                  | 1.5  | 4.0         | 500          | --          | --          | 18          |
| 2N2377   | PNP AMPL/SWITCH | 25         | 25         | 10         | 1.0                                               | 25       | 15       | 120 | 1.0   | 6.0      | --                    | --   | 12          | --           | --          | --          | --          |
| 2N2378   | PNP AMPL/SWITCH | 10         | 10         | 10         | 0.1                                               | 10       | 15       | --  | 5.0   | 0.5      | 0.15                  | 5.0  | 12          | --           | --          | --          | --          |
| 2N2411   | PNP SAT SWITCH  | 25         | 20         | 5.0        | 0.01                                              | 25       | 20       | 60  | 10    | 0.5      | 0.2                   | 10   | 5.0         | 200          | --          | 25          | 100         |
| 2N2412   | PNP SAT SWITCH  | 25         | 20         | 5.0        | 0.01                                              | 25       | 40       | 120 | 10    | 0.5      | 0.2                   | 10   | 5.0         | 200          | --          | 25          | 100         |
| 2N2475   | NPN SAT SWITCH  | 15         | 6.0        | 4.0        | 0.5                                               | 5.0      | 30       | 150 | 20    | 0.4      | 0.4                   | 1.0  | 3.0         | 600          | --          | 20          | 15          |
| 2N2483   | NPN LOW NOISE   | 60         | 60         | 6.0        | 0.01                                              | 45       | 40       | 120 | 0.01  | 5.0      | 0.35                  | 1.0  | 6.0         | 60           | 4.0         | --          | --          |
| 2N2484   | NPN LOW NOISE   | 60         | 60         | 6.0        | 0.01                                              | 45       | 100      | 500 | 0.01  | 5.0      | 0.35                  | 1.0  | 6.0         | 60           | 2.0         | --          | --          |
| 2N2501   | NPN SAT SWITCH  | 40         | 20         | 6.0        | --                                                | --       | 50       | 150 | 10    | 1.0      | 0.2                   | 10   | 4.0         | 350          | --          | --          | --          |
| 2N2509   | NPN LOW NOISE   | 124        | 80         | 7.0        | 0.005                                             | 100      | 25       | --  | 0.01  | 5.0      | 1.0                   | 5.0  | 6.0         | 45           | 7.0         | --          | --          |
| 2N2510   | NPN LOW NOISE   | 100        | 65         | 7.0        | 0.005                                             | 80       | 150      | 500 | 10    | 5.0      | 1.0                   | 5.0  | 6.0         | 45           | 4.0         | --          | --          |
| 2N2511   | NPN LOW NOISE   | 80         | 50         | 7.0        | 0.005                                             | 60       | 240      | 750 | 10    | 5.0      | 1.0                   | 5.0  | 6.0         | 45           | 4.0         | --          | --          |
| 2N2539   | NPN SAT SWITCH  | 60         | 30         | 5.0        | 0.25                                              | 40       | 50       | 150 | 150   | 10       | 0.45                  | 150  | 8.0         | 250          | --          | 40          | 40          |
| 2N2540   | NPN SAT SWITCH  | 60         | 30         | 5.0        | 0.25                                              | 40       | 100      | 300 | 150   | 10       | 0.45                  | 150  | 8.0         | 250          | --          | 40          | 40          |
| 2N2586   | NPN LOW NOISE   | 60         | 45         | 6.0        | 0.200                                             | 45       | 120      | 360 | 0.01  | 5.0      | 0.5                   | 10   | 7.0         | 45           | 3.0         | --          | --          |
| 2N2645   | NPN AMPL/SWITCH | 75         | 40         | 7.0        | 0.01                                              | 60       | 100      | 300 | 150   | 10       | 0.4                   | 10   | 25          | 50           | --          | --          | --          |
| 2N2651   | NPN SAT SWITCH  | 40         | 20         | 5.0        | 0.03                                              | 20       | 25       | --  | 10    | 1.0      | 0.25                  | 10   | 4.0         | 350          | --          | 35          | 75          |
| 2N2710   | NPN SAT SWITCH  | 40         | 20         | 5.0        | 0.03                                              | 20       | 40       | --  | 10    | 1.0      | 0.25                  | 10   | 4.0         | 500          | --          | 20          | 35          |
| 2N2837   | PNP AMPL/SWITCH | 50         | 35         | 5.0        | 0.1                                               | 30       | 30       | --  | 150   | 10       | 1.0                   | 150  | 25          | 120          | --          | --          | --          |
| 2N2838   | PNP AMPL/SWITCH | 50         | 35         | 5.0        | 0.1                                               | 30       | 75       | --  | 150   | 10       | 1.0                   | 150  | 25          | 120          | --          | --          | --          |
| 2N2845   | NPN SAT SWITCH  | 60         | 30         | 5.0        | 0.2                                               | 30       | 30       | 120 | 150   | 10       | 1.0                   | 500  | 8.0         | 250          | --          | 40          | 40          |
| 2N2847   | NPN SAT SWITCH  | 60         | 20         | 5.0        | 0.2                                               | 30       | 40       | 140 | 150   | 10       | 0.75                  | 500  | 8.0         | 250          | --          | 25          | 40          |
| 2N2861   | PNP LOW NOISE   | 25         | 20         | 5.0        | --                                                | --       | 30       | 120 | 0.01  | 5.0      | 0.2                   | 10   | 6.0         | 200          | 3.0         | --          | --          |
| 2N2862   | PNP LOW NOISE   | 25         | 20         | 5.0        | --                                                | --       | 12       | 120 | 0.01  | 5.0      | 0.2                   | 10   | 6.0         | 150          | 4.0         | --          | --          |
| 2N2894   | PNP SAT SWITCH  | 12         | 12         | 4.0        | 0.08*                                             | 6.0      | 40       | 150 | 30    | 0.5      | 0.5                   | 100  | 6.0         | 400          | --          | 60          | 90          |
| 2N2894A  | PNP SAT SWITCH  | 12         | 12         | 4.0        | 0.05                                              | 10       | 30       | --  | 10    | 0.3      | 0.13                  | 10   | 4.5         | 800          | --          | 20          | 25          |
| 2N2895   | NPN AMPL/SWITCH | 120        | 65         | 7.0        | --                                                | --       | 40       | 120 | 150   | 10       | 0.5                   | 500  | 15          | 120          | --          | --          | --          |

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